Leptospirosis

Dr. Nashwan Mansoor

Leptospirosis

❖ Microbiology and epidemiology :-

- Leptospirosis is one of the most common zoonotic diseases.
- Are tightly coiled, thread-like organisms about 5–7 µm in length, which are actively motile.
- Leptospira interrogans is pathogenic for humans.
- Leptospirosis appears to be ubiquitous in wildlife and in many domestic animals.
- The organisms persist indefinitely in the convoluted tubules of the kidney and are shed into the urine in massive numbers, but infection is asymptomatic in the host.

Leptospirosis

❖ Microbiology and epidemiology :-

- Nevertheless considerable overlap in host–serogroup associations.
- Can enter their human hosts through intact skin or mucous membranes but entry is facilitated by cuts and abrasions.
- Prolonged immersion in contaminated water will also favor invasion, as the spirochete can survive in water for months.
- Leptospirosis is common in the tropics and also in freshwater sports enthusiasts.

Leptospirosis

❖ Clinical features :-

- **Relatively brief bacteremia, invading organisms are distributed throughout the body, mainly in kidneys, liver, meninges and brain.**

- **The incubation period averages 1–2 weeks.**

- **Four main clinical syndromes can be discerned and clinical features can involve multiple different organ systems.**

Leptospirosis

❖ Clinical features :-

❑ Bacteremia leptospirosis :-

- ➢ Can produce a non-specific illness with;
  - ✓ High fever.
  - ✓ Weakness.
  - ✓ Muscle pain and tenderness (especially of the calf and back).
  - ✓ Intense headache and photophobia.
  - ✓ Sometimes diarrhea and vomiting.

- ➢ Conjunctival congestion is the only notable physical sign.

- ➢ The illness comes to an end after about 1 week, or else merges into one of the other forms of infection.

Leptospirosis

❖ Clinical features :-

❑ Aseptic meningitis :-

- ➢ **Classically associated with *L. canicola* infection, this illness is very difficult to distinguish from viral meningitis.**

- ➢ **The conjunctivae may be congested but there are no other differentiating signs.**

- ➢ **Laboratory clues include:-**

- ✓ **A neutrophil leukocytosis.**

- ✓ **Abnormal LFTs.**

- ✓ **The occasional presence of albumin and casts in the urine.**

Leptospirosis

❖ Clinical features :-

❖ Icteric leptospirosis (Weil's disease) :-

- **Fewer than 10% of symptomatic infections result in severe icteric illness.**
- **Weil's disease is a dramatic life-threatening event, characterized by fever, hemorrhages, jaundice and acute kidney injury.**
- **Conjunctival hyperemia is a frequent feature.**
- **Transient macular erythematous rash but the characteristic skin changes are purpura and large areas of bruising.**

Leptospirosis

❖ Clinical features :-

❖ Icteric leptospirosis (Weil's disease) :-

- **May be epistaxis, hematemesis and melaena, or bleeding into the pleural, pericardial or subarachnoid spaces.**
- **Thrombocytopenia, probably related to activation of endothelial cells with platelet adhesion and aggregation, is present in 50% of cases.**
- **Jaundice is deep and the liver is enlarged.**
- **Usually little evidence of hepatic failure or encephalopathy.**

Leptospirosis

❖ Clinical features :-

❖ Icteric leptospirosis (Weil's disease) :-

- **Acute kidney injury, primarily caused by impaired renal perfusion and acute tubular necrosis, manifests as:-**

✓ **Oliguria or anuria.**

✓ **The presence of albumin, blood and casts in the urine.**

- **May also be associated with myocarditis, encephalitis and aseptic meningitis.**

- **Uveitis and iritis may appear months after apparent clinical recovery.**

Leptospirosis

❖ Clinical features :-

❑ Pulmonary syndrome :-

- **Recognized in the Far East and has been described during an outbreak of leptospirosis in Nicaragua.**

- **Characterized by:-**

✓ **Hemoptysis.**

✓ **Patchy lung infiltrates on chest X-ray.**

✓ **Respiratory failure.**

- **Total bilateral lung consolidation and ARDS with multi-organ dysfunction may develop, with a high mortality (over 50%).**

Leptospirosis

❖ Diagnosis :-

- In severe infection a polymorphonuclear leukocytosis is accompanied by thrombocytopenia and elevated blood levels of creatine kinase.
- In jaundiced patients, there is hepatitis and the prothrombin time may be prolonged.
- The CSF in leptospiral meningitis shows a variable cellular response, a moderately elevated protein level and normal glucose content.
- Acute kidney injury due to interstitial nephritis is common.
- Important differential diagnoses In the tropics, dengue, malaria, typhoid fever.

Leptospirosis

❖ Diagnosis :-

- **Definitive diagnosis of leptospirosis depends on;**
- ✓ **Isolation of the organism.**
- ✓ **Serological tests.**
- ✓ **Detection of specific DNA.**

- **Blood cultures are most likely to be positive if taken before the 10th day of illness.**

- **Special media are required and cultures may have to be incubated for several weeks.**

- **Leptospira's appear in the urine during the second week of illness, and in untreated patients may be recovered on culture for several months.**

Leptospirosis

❖ Diagnosis :-

- Serological tests are diagnostic if seroconversion or a fourfold increase in titer is demonstrated.
- The microscopic agglutination test (MAT) is the investigation of choice and can become positive by the end of the first week.
- IgM ELISA and immunofluorescent techniques are easier to perform.
- Rapid immunochromatographic tests are specific but of only moderate sensitivity in the first week of illness.
- Detection DNA by PCR is possible in blood in early symptomatic disease, and in urine from the eighth day of illness and for many months thereafter.

Leptospirosis

❖ Management and prevention :-

- **The general care of the patient is critically important.**
- **Blood transfusion for hemorrhage and careful attention to renal function, the usual cause of death, are especially important.**
- **Acute kidney injury is potentially reversible with adequate support, such as dialysis.**
- **Most infections are self-limiting.**

Leptospirosis

❖ Management and prevention :-

- ➢ **Therapy with either;**
- ✓ **Oral doxycycline.**
- ✓ **Intravenous penicillin is effective but may not prevent the development of renal failure.**
- ✓ **Parenteral ceftriaxone is as effective as penicillin.**
- ➢ **Uveitis is treated with a combination of systemic antibiotics and local glucocorticoids.**
- ➢ **No role for the routine use of glucocorticoids in the management of leptospirosis.**
- ➢ **Infection can be prevented by taking prophylactic doxycycline 200 mg we**


عشـــ
لأجلك يا يمن
و مســـير
و سيبقى ن
لن ترى الدنيا
رضي و صيـ